PATENT

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For:	Method of Manufacturing Polyolefin-Polyamide Resin Composition	
Inventors:	Kawaguchi et al.	
Art Unit:	1791	
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DECLARATION OF NORISHIGE KAWAGUCHI

1. My name is Norishige Kawaguchi. At the time of the filing of patent application No. PCT/JP2004/016577, I was the leader of the Synthetic Rubber Technical Group in the Chiba Petrochemical Factory of Ube Industries. I am now retired but I still work for Ube Industries as a short-term contract employee. I am one of the inventors of this patent application.

2. I am also a named inventor in United States Patent No. 4,579,920, *Polybutadiene having high 1,2 and cis-1,4 microstructure contents*.

3. In the method described in the patent application, the temperature range of the melting point of the polyamide is critical.

4. For example, the lower limit of the melting point of the polyamide is 160 °C, because the melting and kneading must be performed at a temperature 20 °C higher than the melting point of the polyamide. We have found that if the melting and kneading step is performed at a temperature lower than the melting point of the polyamide, the material cannot be kneaded and disbursed in the form of fiber. Because an antioxidant is used in the second step of the method to prevent high-temperature deterioration of the polyamide, and the antioxidant has a

melting point with a lower limit of 180 °C, it is critical that the polyamide have a melting point with a lower limit that is 20 °C lower than 180 °C, or 160 °C.

5. In order to turn the polyamide into a fine fiber, the extruding step must be implemented at a temperature higher than the melting point of the polyamide, most preferably a temperature 30 °C higher. The melting and kneading step cannot occur at a temperature higher than about 295 °C without scorching and thermal decomposition of the polyolefin. Accordingly, the upper limit of the melting point of the polyamide must be 265 °C, which is 30 °C less than 295 °C.

6. Please note that if a polyamide with a melting point of, for example, 300 °C is used, the melting and kneading step must be undertaken at 330 °C. At 330 °C, there will be thermal deterioration of the polyolefin and scorching and contamination. Accordingly, the upper limit of 265 °C is critical.

7. Prevention of thermal deterioration of the polyolefin and prevention of scorching and contamination are important for productivity and longer operating time for the equipment. Using a polyamide with a melting point range out of the range of about 160 to 265 °C will decrease productivity and decrease operating time. If the material scorches, the operator must stop the equipment to clean the extruder. Downtime to the equipment means less productivity.

8. Because of these considerations, it is critical that the melting point of the polyamide fall within about 160 to 265 °C. Keeping the melting point range within the two cited temperatures has a synergistic effect, because of (a) improved disbursement of the material in the form of fiber, and (b) improved productivity and increased operating time.

9. The selection of a first antioxidant with a melting point in the range of 70 to 170 °C, a second antioxidant with a melting point in the range of 180 to 300 °C, and a polyamide with a melting point in the range of 160 to 265 °C, produces the following unexpected and synergistic effects in the manufacture of polyolefin-polyamide resins:

a. Ability to knead and disburse the polyamide in the form of fiber;

b. Preventing high-temperature deterioration of the polyamide;

c. Preventing scorching and thermal decomposition of the polyolefin; and

d. Enabling longer operating time, and therefore increased productivity, by avoiding stopping to dismantle the extruder in order to clean and remove scorches.

10. The selection of materials to make a polyolefin-polyamide resin is not predictable. A person of skill in the art of manufacturing polyolefin-polyamide resins would not look at the various materials identified in United States Patent No. 5,424,104 to Amimoto and be able to predict the effect those antioxidants would have on the manufacturing process. A person of skill in the art of manufacturing polyolefin-polyamide resins would not look at the various materials identified in JP 09-059431 to Yamamoto and be able to predict the effect those materials would have on the manufacturing process.

11. A person of skill in the art of polyolefin-polyamide resin would not be able to look at the materials identified in United States Patent No. 5,424,104 to Amimoto or in JP 09-059431 to Yamamoto and expect the selection of materials from those references to produce the synergistic and unexpected results described above.

12. All statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were

made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: March 23, 2009 Norishige Kawaguchi
[signature]

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